Safety Data Sheet

According to EC Directive 91/155/EEC

1. Identification of the substance/preparation and of the company/undertaking

Identification of the product: **Greinox RP**

Company/undertaking identification:
Kai Greising KG Clean Marker
Industriestraße 29/2
D-73340 Amstetten
Phone: 0049-7331/3058-0
Fax: 0049-7331/981722

Emergency telephone No.:
Giftnotrufzentrale Freiburg

Phone: 0049-761-19240

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2. Hazards identification

Causes severe burns.

(Full text of R-Phrases in heading 16)

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3. Composition / information on ingredients:

Aqueous solution

Hazardous ingredients:
Name according to EC Directives:

CAS-No.	EC-No.	EC-Index-No.	Classification	Content:
Nitric acid				
7697-37-2	231-714-2	007-004-00-1	O; R8 C; R35	≥ 20 - < 50 %

(Full text of R-Phrases in heading 16)

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4. First aid measures

After inhalation:	fresh air. Call in physician.
After skin contact:	wash off with plenty of water. Dab with polyethylene glycol 400. Immediately remove contaminated clothing.
After eye contact:	rinse out with plenty of water for at least 10 minutes with the eyelid held wide open. Immediately call in ophthalmologist.
After swallowing:	make victim drink plenty of water (if necessary several litres), avoid vomiting (risk of perforation!). Immediately call in physician. Do not attempt to neutralize.

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5. Fire-fighting measures

Suitable extinguishing media:
In adaptation to materials stored in the immediate neighbourhood.

Special risks:
Non-combustible. Ambient fire may liberate hazardous vapours. The following may develop in event of fire: nitrogen oxides.

Special protective equipment for fire fighting:
Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

Other information:
Contain escaping vapours with water. Prevent fire-fighting water from entering surface water or groundwater.

6. Accidental release measures

Person-related precautionary measures:
Avoid substance contact. Do not inhale vapours/aerosols. Ensure supply of fresh air in enclosed rooms.

Environmental-protection measures:
Do not allow to enter sewerage system. Procedures for cleaning / absorption: Take up with liquid-absorbent and neutralizing material.
Forward for disposal. Clean up affected area

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7. Handling and storage

Handling:
No further requirements.

Storage:
Tightly closed. At +15°C to +25°C.

Requirements for storage rooms and containers:
No metal or light-weight-metal containers.

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8. Exposure controls/personal protection

Specific control parameter

EC

Name	nitric acid
Short term (<15 min.)	1 ml/m^3
	2.6 mg/m^3

Personal protective equipment:

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Respiratory protection:	required when vapours/aerosols are generated. filter E-(P2)	
Eye protection:	required	
Hand protection:	In full contact:	
	Glove material:	natural latex
	Layer thickness:	0,6 mm
	Breakthrough time:	> 480Min.
	In splash contact:	
	Glove material:	nitrile rubber
	Layer thickness:	0,40 mm
	Breakthrough time:	> 120Min.

The protective gloves to be used must comply with the specifications of EC directive 89/686/EEC and the resultant standard EN374. This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves.

Other protective equipment:
Acid-resistant protective clothing.

Industrial hygiene:
Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

9. Physical and chemical properties

Form:	liquid	
Colour:	colourless	
Odour:	pungent	
pH value (20 °C)	< 1	
Melting point	~ -28°C	
Boiling point	~ 120°C	
Ignition temperature	not available	
Flash point	not available	
Explosion limits		
lower	not available	
upper	not available	
Vapour pressure (20 °C)	~ 9.4 hPa	
Density (20 °C)	1.38g/cm^3	
Solubility in water (20 °C)	soluble	
log Pow	-2.3	(anhydrous substance) (OECD 107)

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10. Stability and reactivity

Conditions to be avoided
Heating.

Substances to be avoided
Risk of explosion with: / Risk of ignition or formation of inflammable gases or vapours with:
organic combustible substances, oxidizable substances, organic solvents, alcohols, ketones, aldehydes, anhydrides, amines, anilines, nitriles, organic nitro compounds, hydrazine and derivatives, acetylidene, metals, metal alloys, metallic oxides, alkali metals, alkaline earthmetals, ammonia, alkalis, acids, hydrides, halogens, halogen compounds, nonmetallic oxides, nonmetallic halides, nonmetallic hydrogen compounds, nonmetals, phosphides, nitrides, lithiumsilicide, hydrogen peroxide.

Hazardous decomposition products
in the event of fire: See chapter 5.

Further information
strong oxidizing agent, unsuitable working materials: metals (formation of gas: nitrous gases, hydrogen).

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11. Toxicological information

Acute toxicity

LC_{50} (inhalation, rat):	0,13 mg/l /4 h (nitrogen dioxide) (RTECS).
LDLo (oral, human):	430 mg/kg (anhydrous substance) (Sax).

Specific symptoms in animal studies:
Eye irritation test (rabbit): burns (anhydrous substance) (IUCLID).
Skin irritation test (rabbit): burns (anhydrous substance) (IUCLID).

Subacute to chronic toxicity

Bacterial mutagenicity: Ames test: negative. (anhydrous substance) (OECD 471)

Further toxicological information

Strongly corrosive substance.

After inhalation of vapours:	burns of mucous membranes, coughing, dyspnoea. Inhalation may lead to the formation of oedemas in the respiratory tract.
After skin contact:	burns.
After eye contact:	burns.
After swallowing:	tissue damage (mouth, oesophagus, gastrointestinal tract), strong pain (risk of perforation!), bloody vomiting, death.

Other notes:
The following applies to nitrites/nitrates in general: methaemoglobinaemia after the uptake of large quantities.
Further data:
The product should be handled with the care usual when dealing with chemicals.

12. Ecological information

Biologic degradation:
Methods for the determination of biodegradability are not applicable to inorganic substances.

Behaviour in environmental compartments:
Distribution: log Pow: -2.3 (anhydrous substance) (OECD 107).
No bioaccumulation is to be expected (log Pow <1).
Distribution: Henry constant: 2485 Pa*m3/mol (calculated) (Lit.).
Distribution preferentially in air.

Ecotoxic effects:
Biological effects:
Harmful effect on aquatic organisms. Toxic effect on fish and plankton. Harmful effect due to pH shift. Forms corrosive mixtures with water even if diluted. Does not cause biological oxygen deficit. Hazard for drinking water supplies.

Fish toxicity: Gambusia affinis LC50: 72 mg/l /96 h (anhydrous substance) (IUCLID).

Further ecologic data:
The following applies to nitrates in general: may contribute to the eutrophication of water supplies. Hazard for drinking water. Fish: LC50 > 500 mg/l.

Do not allow to enter waters, waste water, or soil!

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13. Disposal considerations

Product:
Chemicals must be disposed of in compliance with the respective national regulations.

Waste code**:** 11 01 06, acids not otherwise specified

Packaging:
Product packaging must be disposed of in compliance with the country-specific regulationsor must be passed to a packaging return system.

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14. Transport information

Road & Rail ADR, RID
UN2031 NITRIC ACID, 8, II

Inland waterway ADN, ADNR not tested

Sea IMDG-Code
UN 2031 NITRIC ACID NOT MORE THAN 50%, 8, II
Ems F-A S-B

Air
UN 2031 NITRIC ACID
CAO 8, II
PAX 8, II prohibited

The transport regulations are cited according to international regulations and in the form applicable in Germany. Possible national deviations in other countries are not considered.

15. Regulatory information

Labelling according to EC Directives

Symbol:	C	Corrosive
R-phrases:	35	Causes severe burns.
S-phrases:	23-26-36/37/39-45	Do not breathe vapour. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Reduced labelling (1999/45/EC,Art.10,4)

Symbol:	C	Corrosive
R-phrases:	35	Causes severe burns.
S-phrases:	26-36/37/39-45	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

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16. Other information

General update.

Regional representation:
This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.